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SECURITY



## NOTATION PAGE

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Unclassified

2a. SECURITY CLASSIFICATION AUTHORITY OCT 14 1993

2b. DECLASSIFICATION/DOWNGRADING SCHEDULE

1b. RESTRICTIVE MARKINGS

3. DISTRIBUTION/AVAILABILITY OF REPORT  
Approved for public release and sale; its distribution is unlimited.

4. PERFORMING ORGANIZATION REPORT NUMBER(S)

5. MONITORING ORGANIZATION REPORT NUMBER(S)

DOD POP HMTR/AYD 93-020

6a. NAME OF PERFORMING ORGANIZATION

6b. OFFICE SYMBOL  
(If applicable)

7a. NAME OF MONITORING ORGANIZATION

ARDEC

SMCAR-AEP

6c. ADDRESS (City, State, and ZIP Code)

7b. ADDRESS (City, State, and ZIP Code)

Picatinny Arsenal, New Jersey 07806-5000

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Performance Oriented Packaging Testing of Flexible Linear Shaped Charges in Wood Box

12. PERSONAL AUTHOR(S)

Sniezek, Frank M.

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16. SUPPLEMENTARY NOTATION

17. COSATI CODES

FIELD GROUP SUB-GROUP

18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)

Performance Oriented Packaging, POP, Flexible Linear  
Shaped Charge

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

This POP report is for the Flexible Linear Shaped Charge packaged in a wood box.

93-23864



20. DISTRIBUTION/AVAILABILITY OF ABSTRACT

☐ UNCLASSIFIED/UNLIMITED ☒ SAME AS RPT ☐ DTIC USERS

21. ABSTRACT SECURITY CLASSIFICATION

Unclassified

22a. NAME OF RESPONSIBLE INDIVIDUAL

Frank M. Sniezek

22b. TELEPHONE (Include Area Code)

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22c. OFFICE SYMBOL

SMCAR-AEP



DEPARTMENT OF THE ARMY  
U.S. ARMY ARMAMENT RESEARCH, DEVELOPMENT AND ENGINEERING CENTER  
PICATINNY ARSENAL, NJ 07806-5000



REPLY TO  
ATTENTION OF

SMCAR-AEP (1mm)

MEMORANDUM FOR Commander, Defense Technical Information Center,  
Building 5, Cameron Station, Alexandria, VA  
22304-6145

SUBJECT: Release of Performance Oriented Packaging Compliance  
Report for Flexible Linear Shaped Charges

1. The enclosed report (DOD POP HMTR/AYD 93-020) is hereby submitted to the Defense Technical Information Center for formal release. Notification of the formal release should be made to the letterhead address. This report supersedes the report (DOD POP HMTR/AYD 89-002) dated 1 April 89.

2. If there are any problems, questions, or comments regarding this report, contact Mr. Frank Sniezek at 201-724-2156 (DSN 880-2156).

Encl  
as

  
ROBERT J. KUPER  
Chief, Packaging Division

Accession For	
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DTIC QUALITY INSPECTED 8

I. REPORT NUMBER: DOD POP HMTR/AYD 93-020

II. TITLE: Performance Oriented Packaging Testing of Flexible  
Linear Shaped Charges in Wood Box

AUTHOR: Frank M. Snizek

PERFORMING ACTIVITY: ARDEC

ADDRESS: Department of the Army  
Armament Research, Development and Engineering Center  
HQ., U.S. Armament, Munitions and Chemical Command  
Picatinny Arsenal, New Jersey 07806-5000

DATE: 15 Sep 93

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

1. DATA SHEET

CONTAINER

Type: Box  
UN Code: 4C1  
Nomenclature: Package, Shipping and Storage (For  
Charge, Shaped, Linear, Flexible)  
Specification Number: N/A  
Drawing Number: 9332432  
Material: Natural Wood  
Outside Dimensions: 50.25 x 5.50 x 2.06  
Max Gross Weight: 20.06 lbs.

PRODUCT:

Name: Flexible Linear Shaped Charge  
Drawing Number: See Table Below.  
United Nations Number: 0288  
United Nations Packing Group: II  
Physical State: Solid  
Amount Per Container: See Table Below.

<u>DRAWING NUMBER</u>	<u>AMOUNT PER CONTAINER</u>
5206212-1	6
5206212-2	6
5206212-3	6
5206212-4	6
5206212-5	6
5206213-1	6
5206213-2	3
5206213-3	3
5206213-4	3
5206213-5	3
5206213-6	3

## 2. BACKGROUND:

This report contains the results of the POP testing performed on the Flexible Linear Shaped Charge packaged in a wood box. The testing was performed using inert charges (5206213-3) weighted up to the heaviest charge (5206213-6) packaged IAW 9332432 for Performance Oriented Packaging Certification. The gross weight of the tested box was 22 lb. Tests were performed in accordance with Performance Oriented Packaging test regulations specified in 49 CFR, October 1, 1992 Edition.

## 3. TEST:

3.a. The containers were dropped once each from 7 feet (2.1 meters) in lieu of UN requirements of 4 feet (1.2 meters). The containers were dropped on a 3 inch solid steel plate reinforced by 18 inches of crushed rock in 6 different orientations. The tests were conducted at 3 temperatures (6 total containers). The orientations and temperatures were as follows:

TOP:	+160 deg. F
BOTTOM:	-65 deg. F
SIDE:	Ambient
RIGHT END:	Ambient
45 ON RIGHT END:	+160 deg. F
LEFT END:	-65 deg. F

Note: This exceeds the UN requirement which is 5 containers dropped once in 5 orientations (flat on bottom, flat on top, flat on long side, flat on short side, and a corner) at ambient temperature.

3.b. A stacking test was performed on 3 containers by adding a 2100 lb. weight which is equivalent to a 16' stack height for 48 hours at 23 deg. C (75 deg. F) in lieu of a 1282 lb weight which is equivalent to a 10.0 foot stack height at 24 hours.

3.c. A loose cargo test was performed IAW the 49 CFR on 3 containers at a vibration table frequency such that the bottom of the packages were raised a minimum of 1/16 inch.

## 4. RESULTS:

The containers passed all tests. None of the contents of the containers were discharged or spilled meeting the requirements of the 49 CFR.